Applicant provides the below claim listing for the Examiner's convenience. No amendments or other modifications are made to the claims.

1.   (Previously Presented) A method of transmitting data from a transmitting entity to a receiving entity in a wireless multi-antenna communication system utilizing orthogonal frequency division multiplexing (OFDM), comprising:

processing a data packet to obtain a block of data symbols;

demultiplexing pilot symbols and the block of data symbols onto a plurality of subbands to obtain, for the data packet, a plurality of sequences of pilot and data symbols for the plurality of subbands; and

performing spatial processing on at least one of the pilot and data symbols for each subband with at least one steering vector selected for the subband, the spatial processing randomizing a plurality of effective single-input single-output (SISO) channels observed across the plurality of subbands.

2.   (Previously Presented) The method of claim 1, wherein the pilot and data symbols for each subband is spatially processed with one steering vector selected for the subband.

3. ✓   (Previously Presented) The method of claim 2, wherein a plurality of different steering vectors is used for the plurality of subbands.

4.   (Previously Presented) The method of claim 2, wherein the one steering vector used for the spatial processing of each subband is unknown to the receiving entity.

5.   (Previously Presented) The method of claim 1, wherein the pilot and data symbols for each subband is spatially processed with at least two steering vectors selected for the subband.

6.   (Previously Presented) The method of claim 1, wherein one pilot or data symbol is sent on each subband in each symbol period, and wherein the pilot and data symbols for each subband is spatially processed with a different steering vector for each symbol period.

7.   (Original) The method of claim 1, wherein the at least one steering vector used for spatial processing for each subband is known only to the transmitting entity and the receiving entity.

8.   (Original) The method of claim 1, wherein the spatial processing with the at least one steering vector for each subband is performed only on data symbols.

9.   (Original) The method of claim 1, wherein the processing a data packet includes encoding the data packet in accordance with a coding scheme to obtain coded data, interleaving the coded data to obtain interleaved data, and

symbol mapping the interleaved data in accordance with a modulation scheme to obtain the block of data symbols.

10.   (Original) The method of claim 1, further comprising: selecting the at least one steering vector for each subband from among a set of L steering vectors, where L is an integer greater than one.

11.   (Original) The method of claim 10, wherein the L steering vectors are such that any pair of steering vectors among the L steering vectors have low correlation.

12.   (Original) The method of claim 6, further comprising: selecting a steering vector for each subband in each symbol period from among a set of L steering vectors, where L is an integer greater than one.

13.   (Original) The method of claim 1, wherein each steering vector includes T elements having same magnitude but different phases, where T is the number of transmit antennas at the transmitting entity and is an integer greater than one.

14. (Previously Presented) An apparatus in a wireless multi-antenna communication system utilizing orthogonal frequency division multiplexing (OFDM), comprising:

a data processor operative to process a data packet to obtain a block of data symbols;

a demultiplexer operative to demultiplex pilot symbols and the block of data symbols onto a plurality of subbands to obtain, for the data packet, a plurality of sequences of pilot and data symbols for the plurality of subbands; and

a spatial processor operative to perform spatial processing on at least one of the pilot and data symbols for each subband with at least one steering vector selected for the subband, the spatial processing randomizing a plurality of effective single-input single-output (SISO) channels observed across the plurality of subbands.

15. (Previously Presented) The apparatus of claim 14, wherein the spatial processor is operative to spatially process the pilot and data symbols for each subband with one steering vector selected for the subband.

16. (Previously Presented) The apparatus of claim 14, wherein the spatial processor is operative to spatially process the pilot and data symbols for each subband with at least two steering vectors selected for the subband.

17. (Original) The apparatus of claim 16, wherein the at least two steering vectors for each subband are known only to a transmitting entity and a receiving entity for the data packet.

18. (Original) The apparatus of claim 14, wherein each steering vector includes T elements having same magnitude but different phases, where T is the number of antennas used to transmit the data packet and is an integer greater than one.

19. (Previously Presented) An apparatus in a wireless multi-antenna communication system utilizing orthogonal frequency division multiplexing (OFDM), comprising:

means for processing a data packet to obtain a block of data symbols;

means for demultiplexing pilot symbols and the block of data symbols onto a plurality of subbands to obtain, for the data packet, a plurality of sequences of pilot and data symbols for the plurality of subbands; and

means for performing spatial processing on at least one of the pilot and data symbols for each subband with at least one steering vector selected for the subband, the spatial processing randomizing a plurality of effective single-input single-output (SISO) channels observed across the plurality of subbands.

20. (Previously Presented) The apparatus of claim 19, wherein the pilot and data symbols for each subband is spatially processed with one steering vector selected for the subband.

21. (Previously Presented) The apparatus of claim 19, wherein the pilot and data symbols for each subband is spatially processed with at least two steering vectors selected for the subband.

22. (Original) The apparatus of claim 21, wherein the at least two steering vectors for each subband are known only to a transmitting entity and a receiving entity for the data packet.

23. (Original) The apparatus of claim 19, wherein each steering vector includes T elements having same magnitude but different phases, where T is the number of antennas used to transmit the data packet and is an integer greater than one.

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25-62. (Cancelled)

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63. (Previously Presented)   A memory unit for processing data for transmission from transmitting data from a transmitting entity to a receiving entity in a wireless multi-antenna communication system utilizing orthogonal frequency division multiplexing (OFDM) comprising a memory, the memory having instructions stored thereon, the instructions being executable by one or more processors and the instructions comprising:

instructions for processing a data packet to obtain a block of data symbols;

instructions for demultiplexing pilot symbols and the block of data symbols onto a plurality of subbands to obtain, for the data packet, a plurality of sequences of pilot and data symbols for the plurality of subbands; and

instructions for performing spatial processing on at least one of the pilot and data symbols for each subband with at least one steering vector selected for the subband, the spatial processing randomizing a plurality of effective single-input single-output (SISO) channels observed across the plurality of subbands.